

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 38, 42, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (6,652,068) in view of Baker et al. (5,052,271).

In re claim 38, *Hsu et al. (068')* teaches an ink jet print head (210, Fig. 16) [Column 5 lines 32-36] comprising a print head matrix (210, 220, Fig. 16) [Column 5 lines 34-36], the matrix (210, 220) having a plurality of nozzles (112, Fig. 16) [See Fig. 16] for bubble formation and expulsion opening onto a print side surface (side of printhead where nozzle layer (102, Fig. 16) is mounted) of said matrix [Column 3 lines 36-39] and a plurality of local reservoirs (132, 134, 136, 196, and 216, Fig. 16), wherein each of said local reservoirs (132, 134, 136, 196, and 216) is configured to supply ink to at least respective nearby nozzle of said nozzles [Column 5 lines 47-53, See also Fig. 16], said local reservoirs (132, 134, 136, 196, and 216) opening onto an ink supply surface (bottom half of print cartridge (220, Fig. 16)) of said matrix [See Fig. 16] and wherein each one of said plurality of nozzles (112) is arranged with its own respective local ink detaining storage reservoir (132, 134, 136, 196, and 216) [Column 5 lines 47-53, See Fig. 16]. However, Hsu et al. (068') does not teach ink supplied is by capillary action.

Baker et al. (271') teaches ink supplied to at least respective nearby nozzle of said nozzles by capillary action [Abstract lines 1-11, Column 3 lines 5-12, See also Fig. 2].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide ink supplied to at least respective nearby nozzle of said nozzles by capillary action as taught by *Baker et al. (271')* in the inkjet printhead of *Hsu et al. (068')* for the purposes of feeding ink to the printhead [Abstract lines 7-11].

In re claim 42, *Hsu et al. (068')* in combination with *Baker et al. (271')* teaches the ink jet print head of claim 38 [see rejection above]. However, *Baker et al. (271')* does not teach wherein said print side surface and said ink supply surface are respectively opposite sides of said matrix.

Hsu et al. (068') further teaches wherein said print side surface (the side of the printhead where the nozzle layer (102) is mounted) and said ink supply surface (bottom of the print cartridge (220)) are respectively opposite sides of said matrix (210, 220) [See Fig. 16].

In re claim 59, *Hsu et al. (068')* teaches an ink jet printing head (210, Fig. 16) comprising a plurality of nozzles (112, Fig. 15 and 16) for forming and expelling ink droplets for printing onto a print medium [Column 3 lines 36-39], wherein the plurality of nozzles (112) is arranged into a two dimensional grid substantially to be coextensive

with a standard size print medium [See Fig. 15], the inkjet printing head (210) further comprises a plurality of local ink-detaining reservoirs (132, 134, 136, 196, 216, Fig. 16), and each of said local reservoirs is configured to supply ink to at least one respective nearby nozzle [Column 3 lines 36-38, Column 5 lines 47-53]. However, Hsu et al. (068') does not teach the ink is supplied by capillary action.

Baker et al. (271') teaches ink is supplied to the nozzles by capillary action [[Abstract lines 1-11, Column 3 lines 5-12, See also Fig. 2].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide ink supplied to at least respective nearby nozzle of said nozzles by capillary action as taught by Baker et al. (271') in the inkjet printhead of Hsu et al. (068') for the purposes of feeding ink to the printhead [Abstract lines 7-11].

Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (6,652,068) in view of Baker et al. (5,025,271) as applied to claims 38, 42, and 59 above, and further in view of Hermanson (5, 581,284).

In re claim 40, *Hsu et al. (068') in combination with Baker et al. (271')* teaches the ink jet print head of claim 38 [see rejection above], wherein said matrix is arranged into a substantially rectangular printing area dimensioned to give simultaneous printing coverage of standard sized printing media upon being placed substantially over said standard sized printing media [Hsu et al. (068') See Fig. 15, Column 7 lines 4-6].

In re claim 41, *Hsu et al. (068')* in combination with *Baker et al. (271')* teaches the ink jet print head of claim 40 [see rejection above], arranged for printing on said standard sized printing media during a period of unchanged relative displacement between said print head and said printing media [*Hsu et al. (068')* See Fig. 15, Column 7 lines 4-6].

However, *Hsu et al. (068')* and *Baker et al. (271')* both do not explicitly teach the inkjet printhead to be a pagewidth or serial printer.

Hermanson (284') teaches an inkjet printhead which can be used as a pagewidth or serial printer [Column 6 lines 44-50].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the inkjet printhead of *Hsu et al. (068')* in an inkjet printer or apparatus and for such an inkjet printhead to be capable of use as a pagewidth or serial printhead as taught by *Hermanson (284')* in the inkjet head of *Hsu et al. (068')* in combination with *Baker et al. (271')* for the purposes of extending the life of the printhead [*Hermanson (284')* Column 1 lines 6-8]. Therefore, the inkjet printhead matrix is capable of being arranged into a substantially rectangular printing area dimensioned to give simultaneous printing coverage of standard sized printing media and arranged for printing on said standard sized printing media during a period of unchanged relative displacement between said print head and said printing media. (Claims 40-41).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (6,652,068) in view of Baker et al. (5,025,271) as applied to claims 38-42 and 59 above, and further in view of Kurata et al. (2001/004610).

In re claim 43, *Hsu et al. (068')* in combination with *Baker et al. (271')* teaches the ink jet print head of claim 38 [see rejection above]. However, *Hsu et al. (068')* and *Baker et al. (271')* both do not teach the ink jet head further comprising further comprising an ink distribution device associated with said ink supply surface for distributing ink to reach said local ink reservoirs.

Kurata et al. (2001/0040610) teaches ink jet head further comprising an ink distribution device associated with said ink supply surface for distributing ink to reach said local ink reservoirs [Paragraph 50 lines 12-20, Paragraph 52, Paragraphs 57-58].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an ink distribution device associated with said ink supply surface for distributing ink to reach said local ink reservoirs as taught by *Kurata et al. (2001/0040610)* in the ink jet head of *Hsu et al. (068')* in combination with *Baker et al. (271')* for the purposes of replenishing ink into the ink reservoirs [*Kurata et al. (2001/0040610)* Paragraph 57 lines 3-6].

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (6,652,068) in view of Baker et al. (5,025,271) and Kurata et al. (2001/004640) as applied to claims 38-43 and 59 above, and further in view of Cowger et al. (5,010,354).

In re claim 47, *Hsu et al. (068')* in combination with *Baker et al. (271')* and *Kurata et al. (2001/0040610)* teaches the ink jet print head of claim 43 [see rejection above]. However, *Hsu et al. (068')*, *Baker et al. (271')*, and *Kurata et al. (2001/0040610)* both do not teach the ink distribution device is a tubeless distribution device.

Cowger et al. (354') teaches an ink distribution device is a tubeless distribution device [Column 2 line 55-Column line 6].

It would have been obvious to one of ordinary skill of the art at the time the invention was made to provide a tubeless ink distribution device as taught by *Cowger et al. (354')* in the ink jet head of *Hsu et al. (068')* in combination with *Baker et al. (271')* and *Kurata et al. (2001/0040610)* for the purpose of maintaining pressure within an ink reservoir at less than ambient pressure [*Cowger et al. (354')* Column 2 line 68-Column 3 lines 3].

Response to Arguments

3. Applicant's arguments filed March 12, 2008 have been fully considered but they are not persuasive. In response to the arguments presented by the Applicant in the most recent amendments, the Examiner respectfully disagrees.

In response to the argument presented by the Applicant that the ink reservoir 132 of the prior art *Hsu et al. (6,652,068)* is a feeding pipe that lacks any ink retaining features, so that the ink flows smoothly to the nozzle and that it does not constitute an ink-detaining storage reservoir, the Examiner respectfully disagrees. The prior art *Hsu* clearly teaches that element 132 is an ink reservoir not an ink feed pipe. Due to the clear disclosure that element 132 is an ink reservoir, it can not be and should not be

construed as an ink feed pipe. Furthermore, the prior art clearly teaches the function of the ink reservoir is to store ink [See Column 4 lines 30-50 and Column 5 lines 41-59]. In addition, the definition of a reservoir is a part of an apparatus in which liquid is held and the definition of detain is to hold or keep in as taught by Merriam-Webster Online Dictionary. Therefore, the ink reservoir 132 clearly taught in the prior art Hsu which stores/holds ink is an ink-detaining storage reservoir.

In response to the argument presented by the Applicant that the combination of the prior art Hsu and Baker does not teach the claimed invention, the Examiner respectfully disagrees. The prior art of Hsu teaches the claimed invention including the amended limitation of an ink-detaining storage reservoir, except the ink is fed to the nozzles using capillary action. However, the prior art of Baker teaches that ink is fed from an ink-detaining storage reservoir to the nozzles using capillary action. In the prior art Baker teaches an ink-detaining storage reservoir in the form of a porous foam material that receives and retains a supply of ink for feeding the ink by capillary action to a plurality of nozzles [See Abstract of the prior art Baker et al. (5,025,271)]. Therefore, the combination of Hsu and Baker teaches the claimed invention including the amended limitation.

In response to the argument presented by the Applicant that the prior art does not address the issue of feeding ink at atmospheric pressure and both prior art Hsu and Baker do not provide a solution or hint at a solution that allows feeding atmospheric pressure. The Examiner would like to point out that none of the claims, claim that the advantage of using capillary action allows for feeding ink at atmospheric pressure.

Furthermore, if the prior art reads on the claimed invention, the prior art does not have to solve the same problem, hint at, or provide a solution to the same problem.

Therefore, the rejection of claims 38, 40-43, 47, and 59 is upheld.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LISA M. SOLOMON whose telephone number is (571)272-1701. The examiner can normally be reached on Monday - Friday from 8:00 am - 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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